

REMARKS

Claims 1-27 have been examined. By this Amendment, Applicant cancels claims 12-14 and 25-27 and adds claims 28-40.

In addition, by this amendment, Applicant editorially amends claims 1, 2, 4-6, 9-13 and 15-27. The amendments to these claims were made for reasons of precision of language and consistency, and do not narrow the literal scope of the claims and thus do not implicate an estoppel in the application of the doctrine of equivalents. The amendments to claims 1, 2, 4-6, 9-13 and 15-27 were not made for reasons of patentability.

Preliminary Matters

Applicant thanks the Examiner for acknowledging the claim to foreign priority and for confirming that the certified copy of the priority document was received. In addition, Applicant also thanks the Examiner for initialing the references listed on Form PTO-1449 submitted with the Information Disclosure Statement filed on July 30, 2001.

Summary of the Office Action

The Examiner rejected claims 1-11 and 15-24 under 35 U.S.C. § 103(a) and objected to claims 12-14 and 25-27 for being dependent upon rejected base claims.

Claim Rejections under 35 U.S.C. § 103(a)

To begin, claims 1-10, 15-22 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,545,689 to Tunli (hereinafter "Tunli") in view of U.S. Patent No. 5,923,365 to Tamir et al (hereinafter "Tamir") and claims 11 and 23 under 35 U.S.C. §

103(a) as being unpatentable over Tunli in view of Tamir and further in view of U.S. Patent No. 6,292,706 to Birch et al. (hereinafter "Birch"). Applicant respectfully traverses these rejections in view of the following comments.

Applicant removes Tunli as a reference by demonstrating that Applicant invented the claimed invention prior to the effective prior art date of the Tunli patent. Tunli is cited as prior art under 35 U.S.C. § 102(e), based upon its U.S. filing date of January 20, 1999. Tunli does not present a statutory bar since it was patented after the priority date of the present application. Specifically, the present application claims priority from Japanese Application 11-23071, filed on January 29, 1999. Notably, this filing date was only nine days after the effective prior art date of the Tunli patent. Under current U.S. law, Tunli patent may be removed as a reference by demonstrating that the invention disclosed in the present application was conceived prior to the Tunli's filing date, followed by actual reduction to practice or by diligence leading to the constructive reduction to practice of the present invention. Constructive reduction to practice may be demonstrated by the filing of a patent application.

In the present case, it is clear that the invention must have been conceived of prior to January 20, 1999. Evidence of Applicant's conception and actual reduction to practice or constructive reduction to practice with diligence at least before January 20, 1999 to January 29, 1999, is demonstrated through a Rule 131 affidavit of Messrs. Kentaro Konishi, Masaki Usui and Tatsuya Okahara, Japanese inventors, proving that the claimed invention was conceived prior to January 20, 1999 and that it was actually reduced to practice just prior to January 20, 1999 or

that the inventors were diligently working in reducing it to practice just prior to January 20, 1999 to January 29, 1999, the constructive reduction to practice date.

In particular, the Rule 131 Declaration, as supported by copies of the original documents, states that application was conceived and reduced to practice by the inventors prior to January 20, 1999 or that the inventors were diligently working in reducing it to practice just prior to January 20, 1999 to January 29, 1999. The Declaration is accompanied by a copy of a Development Sub-Contracting Agreement and the Japanese Specifications prepared prior to January 20, 1999, listing features of the invention, and the delivery deadline to be January 20, 1999. The Specification shows the basic structure of the present invention, which can be equated to a draft Application. A certified copy of the Japanese application already has been filed as a priority document and acknowledged by the Examiner.

With removal of the Tulsi reference, all rejections of the claims should be overcome and the claims as filed should be considered allowable by the Examiner, unless new prior art is found. Moreover, with respect to the secondary reference, Tamir, cited by the Examiner, Applicant respectfully submits the following remarks.

Tamir not only fails to cure the deficient teachings of Tulsi but also lacks a number of novel features recited in independent claims 1, 6, 15 and 20. For example, independent claim 1 recites:

a processing means for generating a data list data indicating, in time series, a temporal transition of a position and a

state of said object image-picked up by said
image-picking means, with respect to a time;

An illustrative, non-limiting embodiment of the present invention provides a system for statistical analysis of positioning or movement of players as it relates to team formation. In particular, an illustrative, non-limiting embodiment of the present invention teaches a system which allows analysis of images by using variety of parameters, thereby providing the user with numerical values for statistical analysis, which may be displayed in a chart format, a graph, a list or in some other form.

For example, the user may search a list of games based on weather conditions or a number of viewers. Moreover, a particular player or players may be analyzed by number of passes, number of shots, their speed, with which foot they kicked the ball and so on. A team formation may be analyzed by showing the viewer where there were open spaces, number of passes, ball control rate and so on. Moreover, a particular play or image of interest may be viewed from a different angle depending on user selection.

The Examiner acknowledges that neither Tunli nor Tamir explicitly teach a data list indicating in time series, a temporal transition of a position and a state of said object image-picked up. However, the Examiner alleges that Tamir implicitly teaches generating a data list which indicates a position and state of the object (see page 4 of the office action). In particular, the Examiner asserts that it would have been obvious to determine position and state of the players. For support, the Examiner cites to Fig. 2 of Tamir stating that it would not have been possible to obtain such an image if the position and state of the players were not determined.

Applicant has carefully studied Tamir's discussion of the players and Applicant respectfully disagrees with the Examiner. Tamir teaches a sport event video manipulating system for manipulating the representation of a sports event. In particular, Tamir teaches that a user selects (highlights) an object or a region at a certain frame and this object is traced throughout the entire video. The user can choose to view a video clip of this object or to see a still image of the entire event superimposing acts that occurred at different time points on the same global background image (col. 13, lines 40 to 65). The system is capable of detecting fusion, splitting and occlusion of the object (col. 10, lines 15 to 35). Fig. 2 of Tamir shows tracking of the selected object on the consecutive frames. Fig. 2 is a past trajectory superimposed on a video (col. 8, lines 5 to 10).

However, Tamir is no different from the prior art disclosed in the Applicant's background of the invention. That is, Tamir's system enables a simple analysis for positioning and movement of individual players. Tamir's system traces user selected object from frame to frame by using a conventional edge algorithms such as edge detection, thresholding and continuity (col. 9, lines 4 to 30). Tamir fails to teach or suggest generating a data list of the state of the object. In Tamir, the object is defined by an area highlighted by the user, and the object's movement is the only thing being monitored. The object is being monitored by tracing the object's edges at each point in time. Tamir's system does not teach or suggest generating a data list of the object's state.

For example, as shown in Fig. 2, the object selected by the user is a player with the ball but in Tamir, no data list on the state of the object is generated. In other words, Tamir's system

is not capable of generating a list, which would have data such as the player who has the ball, the player is turning around, the player is passing the ball, the player is dribbling, the player is just standing and so on. In short, Tamir's system is designed for monitoring the movement of the object and not for generating a data list of the states of the object. Therefore, Applicant respectfully submits that independent claim 1 is not obvious in view of Tamir and claims 2-5 are patentable at least by virtue of their dependency on claim 1.

Similarly, independent claim 6, as now amended, recites a number of novel features not taught by Tamir. For example, claim 6, as now amended recites: *wherein said predetermined form comprises at least one of a chart, a numerical list, an image and a video*. Tamir only teaches converting inputted data into a digitized element, and clearly fails to teach or suggest converting inputted data into a chart, a numerical list or similar form useful for statistical analysis. As a result, for at least these reasons, claim 6 is not obvious over Tamir and claims 7-10 are patentable at least by virtue of their dependency on claim 6.

In addition, claim 15 contains a number of novel features not taught in the prior art. For example, claim 15 recites generating a data list ...of a state of said object. This recitation is somewhat similar to the features argued above with respect to claim 1, those arguments are respectfully submitted to apply with equal force here. For at least substantially the same reasons, therefore, Applicant respectfully submits that claim 15 is not obvious over Tamir and its dependent claims 16-19 at least by virtue of their dependency.

Finally, claim 20 contains a number of novel features not taught in the prior art. For example, claim 20 recites *wherein said predetermined form comprises at least one of a chart, a numerical list, an image and a video*. This recitation is somewhat similar to the features argued above with respect to claim 6, those arguments are respectfully submitted to apply with equal force here. For at least substantially the same reasons, therefore, Applicant respectfully submits that claim 20 is not obvious over Tamir and its dependent claims 21, 22 and 24 at least by virtue of their dependency.

Claims 11 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tunli in view of Tamir and further in view of Birch. The Examiner cites Birch solely for a teaching of entering weather conditions, a game stadium, starting time of the game and number of spectators at the game. The primary reliance is on Tunli. With removal of Tunli as a reference, this rejection is overcome.

New Claims

In order to provide more varied protection, Applicant adds claims 28-34. Claim 28 is patentable at least by virtue of its recitation of a data list comprising position coordinates of said object and flags indicating state of said object at a plurality of points in time. Claims 29-33 are patentable at least by virtue of their dependency on claim 28. Claim 34 is patentable at least by virtue of its dependency on claim 20.

Allowable Subject Matter

Applicants thanks the Examiner for indicating that claims 12-14 and 25-27 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Applicant adds new claims 35-40, which correspond to claims 12-14 and 25-27, respectively, rewritten in their independent form. Therefore, Applicant respectfully requests the Examiner to indicate allowance of the newly added claims 34-40, which contain the allowable subject matter.

Applicant does not acquiesce to any inferences or presumptions drawn from the Examiner's statements regarding reasons for allowance.

Conclusion and request for a telephone interview

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

Amendment Under 37 C.F.R. § 1.111
U.S. Application No.: 09/919,989

Attorney Docket No.: Q65606

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

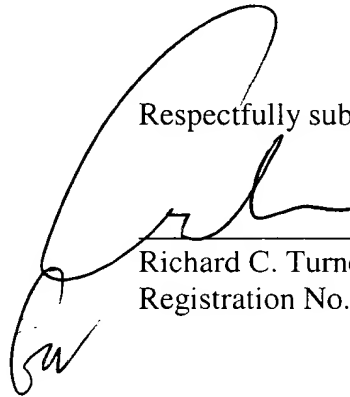
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Date: April 14, 2004